ComEd Ex. 24.0

STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

COMMONWEALTH EDISON COMPANY	:	
	:	
Application for a Certificate of Public Convenience and Necessity, pursuant to Section 8-406.1 of the Illinois Public Utilities Act, and an Order pursuant to Section 8-503 of Illinois Public Utilities Act, to Construct, Operate and Maintain a new 345 kilovolt transmission line in Ogle, DeKalb, Kane and DuPage Counties, Illinois	:	No. 13-0657

Surrebuttal Testimony of

PAUL F. MCGLYNN, P.E.

Director, System Planning

PJM Interconnection

On behalf of

Commonwealth Edison Company

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I. INTRODUCTION

A. Witness Identification

Q. Please state your name and business address.

A. My name is Paul F. McGlynn.

Q. Are you the same Paul F. McGlynn that provided testimony in this docket?

A. Yes. My background, qualifications, duties, and responsibilities remain unchanged.

B. Purpose of Testimony

Q. What, in sum, are the purposes and conclusions of your surrebuttal testimony?

A. My surrebuttal testimony responds to the rebuttal testimony of Adam Rouselle and Dr. Richard D. Tabors, filed on behalf of intervenor Utility Risk Management Corporation ("URMC") and, the rebuttal testimony of Richard J. Zuraski filed on behalf of Staff. Broadly, in response to Mr. Rouselle, I maintain that the URMC's proposed merchant upgrade project does not affect the need for the Grand Prairie Gateway ("GPG") Project ("Project"). The need for the Project to alleviate Stage 1ARR infeasibilities, as mentioned in my direct testimony, is not changed regardless of whether URMC's proposed merchant project is placed into service or not. Moreover, in response to Mr. Zuraski, I emphasize that respecting PJM's regional planning process promotes the development of a competitively effective energy market. Finally, in response to Dr. Tabors, I conclude that PJM's load forecasting methodology relies upon known and measureable statistical data and proven analytical tools to predict future load growth in the various PJM transmission zones and the PJM Region as a whole.

II. THE URMC PROPOSED MERCHANT UPGRADE DOES NOT AFFECT THE NEED FOR THE GPG PROJECT

A. Nature of the URMC Proposal

Q. **What is the URMC proposal?**

A. The URMC proposal is to increase the summer emergency rating of one of the existing Byron – Cherry Valley 345kV lines from 1,479 MVA to 1505 MVA. To do so, ComEd would replace seven miles of 2338 kcmil ACAR conductor on a portion of that line with one per phase 2156 kcmil ACSR conductor (single conductor). This line already has a portion of 2156 kcmil ACSR. URMC has proposed an alternate of using two per phase-1113 kcmil ACSR subconductors (bundled conductor), the capabilities of which would far exceed the requested 26 MVA increase in thermal rating.

Q. **What is its current status?**

A. URMC has submitted a Transmission Interconnection Feasibility Study Agreement (a form of which can be found in Attachment S of the PJM OATT) to PJM to enter the interconnection queue. PJM has completed a Combined Feasibility and System Impact Study for the single conductor only. A Facilities Study still remains to be performed.

Q. **Has URMC made any commitment to PJM – or to any other stakeholder of which you are aware – to fund the project?**

A. URMC has made no commitment to PJM to fund the project. At this point, URMC only has a preliminary estimate of the cost of the upgrade, and that cost estimate is for the single conductor only. Even if URMC has made some kind of commitment to some other stakeholder to fund the project, that is of no consequence.

Q. **Based on where URMC is in the PJM interconnection queue are they obligated to fund the proposed upgrade of a portion of the Byron – Cherry Valley line?**

A. No. URMC has proposed a merchant transmission project, in this case, to upgrade a portion of the Byron – Cherry Valley 345kV line by increasing the line rating. URMC has not signed an Upgrade Construction Service Agreement to perform the upgrade.[1] Thus, there is no commitment on the part of URMC to perform the work. URMC agrees.[2] For these reasons, PJM cannot, at this point, consider this proposed project for inclusion in its Regional Transmission Expansion Plan, or RTEP. Moreover, PJM still has to perform a Facilities Study, so URMC does not know the complete scope or estimated cost of this proposed upgrade. I should note that URMC has asked PJM to consider using multiple conductors per phase and this has not yet been studied.

Q. **Is the URMC proposal at the stage in the PJM process where such a commitment is realistic?**

A. No. As stated above, the Facilities Study remains to be performed and after that, URMC has the option as to whether it will go forward and sign an Upgrade Construction Service Agreement. A Facilities Study of this nature typically takes six months to complete.

B. The GPG Project is Required Regardless of Whether the URMC Upgrade is Placed into Service.

Q. **Assume hypothetically, that the URMC proposal would, with absolute certainty, be constructed and that it would be constructed just as currently proposed. Does that**

[1] URMC Response to ComEd Data Request 1.10, included in ComEd Group Ex. 14.

[2] URMC Response to ComEd Data Request 1.09, included in ComEd Group Ex. 15.

proposed upgrade of a portion of ComEd's Byron to Cherry Valley 345kV line abrogate the need for the GPG Project identified by PJM?

A. No. The upgrade of the conductors on a portion of ComEd's Byron to Cherry Valley 345kV line does not replace the need for the GPG Project identified by PJM. Even if URMC were in fact to upgrade a portion of ComEd's Byron to Cherry Valley 345kV line, it would have no effect on the need for GPG Project to remedy the 10-year Stage 1A ARR infeasibilities.

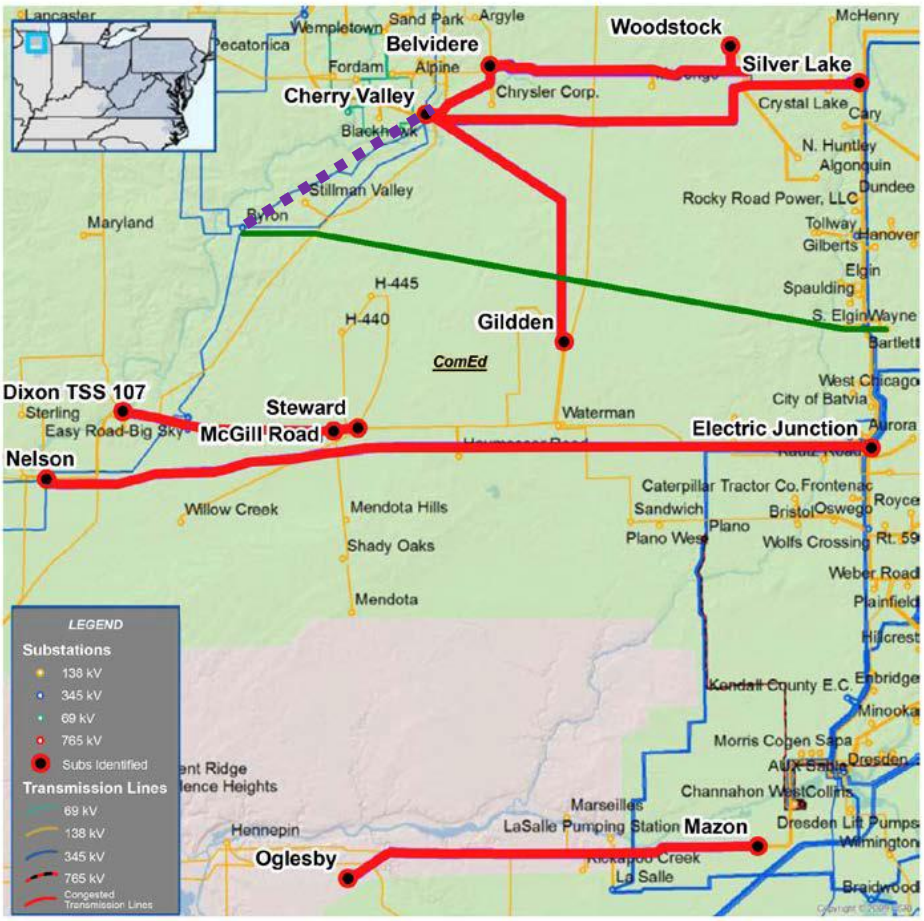
Q. **Why are you confident of that fact?**

A. As I described in my direct testimony, PJM studied a number of alternatives to find the best solution to the Stage 1A ARR infeasibilities. One of the alternatives that PJM studied was not a re-conductoring, but adding a wholly new Byron – Cherry Valley 345kV circuit; that is adding a third 345kV circuit from Byron to Cherry Valley. ComEd Dir. Ex. 3.0 at 26:471. PJM found that this alternative did not solve the Stage 1A ARR infeasibility violations. Obviously, re-conductoring an existing 345kV circuit as URMC is proposing would have less impact than adding a completely new circuit. URMC admits that its proposed merchant upgrade will not eliminate the State 1A ARR infeasibility violations.[3]

The proposed upgrade to a portion of ComEd's Byron to Cherry Valley 345 kV line will have no impact on the ratings of any of the constrained facilities driving the need for the GPG project. The claim that a proposed upgrade of a portion of one of ComEd's Byron to Cherry Valley 345kV lines would eliminate the need for the GPG Project does

[3] URMC Response to ComEd Data Request 1.07, included in ComEd Group Ex. 2.

not make sense based on the actual topology of the system. This can be seen graphically by looking at the constraints causing the Stage 1A ARR violations which I described in my direct testimony. ComEd Dir. Ex. 3.0 at 23:441-24:448. As shown on the map below (which except for highlighting, the Byron – Cherry Valley line is identical to that in my direct testimony), the constraints are shown in red while Byron – Cherry Valley upgrade is shown as the dotted purple line.



In order for the URMC project to eliminate the need for the GPG Project it would need to relieve the loading on all of the constrained facilities. It is obvious that any upgrade to a portion of one Byron – Cherry Valley cannot relieve the loadings on all of the multiple constrained lines. Indeed, lowering the impedance on one of the Byron –

Cherry Valley 345kV lines would likely increase the loading on the constrained lines east of Cherry Valley and make the Stage 1A ARR infeasibility even worse on those lines.

Q. **Can PJM even consider the impact of a potential upgrade of a portion of the Byron – Cherry Valley 345kV line in its RTEP analysis?**

A. No. At this stage, the project is speculative. As I stated above, URMC has no commitment to fund the upgrade and may withdraw its request if it so desires. Furthermore, and of paramount importance as I stated above, the proposed upgrade would not solve the Stage 1A ARR violations and thus, whether or not URMC actually funds the upgrade, or actually constructs, a portion of the Byron-Cherry Valley 345kV line, the GPG Project still would be required.

C. Respecting the Regional Planning Process Promotes the Development of an Effectively Competitive Market

Q. **Mr. Zuraski, in his rebuttal testimony, discusses whether the Project not only benefits customers, but also promotes market development. By satisfying the PJM ARR criterion, does the project promote the development of an effectively competitive electricity market that operates efficiently?**

A. Mr. Zuraski accepts that the proposed project benefits customers, in Illinois and PJM, and that those benefits exceed the cost of the line. However, he does not clearly acknowledge that, by addressing the Stage 1A ARR infeasibilities, the Project also promotes the development of an effectively competitive electricity market that operates efficiently. The criteria under PJM's FERC-approved tariff and regional planning process includes a particular criterion commonly referred to as "market efficiency," that does not imply that

the other criteria have nothing to do with promoting and sustaining a competitive market. In fact, satisfying all the mandatory criteria – including the ARR criterion that is so important to the efficient management of congestion – together promote and support an effectively competitive market. The Commission can be certain that by approving the GPG Project and addressing the congestion problems that the Project rectifies, it will promote the continued development of an effectively competitive electricity market that operates efficiently.

Q. **Mr. Zuraski's testimony also refers to the ARR benefits as being spread across PJM. Is this true in this case?**

A. Not in the sense I believe he means. Efficient congestion management does benefit everyone, but the specific ARR insufficiencies that the GPG Project rectifies are all in Illinois, and the benefits from addressing those insufficiencies will also accrue to the Illinois customers who will have greater access to unimpaired ARRs.

D. PJM's Load Forecasting Methodology Utilizes Known and Measurable Statistical Data and Proven Analytical Tools

Q. **Dr. Tabors concludes that PJM's load forecast methodology is flawed and, therefore, the calculation of required Stage 1A ARRs is inaccurate as a result. Can you briefly explain the process used to develop the PJM load forecast?**

A. Each year PJM produces a 15-year forecast of peak loads throughout the PJM Region assuming a range of weather and economic conditions. The forecast is done for each of the eighteen PJM transmission zones as well as the entire PJM Region. To develop this forecast, PJM uses anticipated economic growth and historical weather patterns to estimate growth in peak load, taking into consideration historical load, calendar effects

(i.e. days of the week, month of the year, holidays etc.), historical weather data from over 30 weather stations across the RTO, and economic drivers.

Q. **Can you expand upon the economic factors that are used in the development of the load forecast?**

A. The economic drivers, which are measures of economic and demographic activity that are factored in to the forecast models, include numbers of households, population, personal income, the number of non-manufacturing employees in a metropolitan area, the Gross Domestic Product in the United States and the Gross Metropolitan Product for various metropolitan areas across the RTO. These economic measures and drivers are forward looking inputs to the PJM load forecast.

Q. **How do these factors come together to produce the load forecast?**

A. Essentially, the load forecast is developed statistically given the calendar effects and the probability of having a certain type of weather along with the expectation of future economic growth. In general, greater economic growth will yield higher load forecasts. Peak load forecasts are developed using a Monte Carlo simulation process which produces forecasts of future peak load by utilizing observed and historical weather patterns for the prior thirty-plus years.[4] The simulation process produces a distribution of monthly forecasts for each PJM transmission zone and the entire PJM Region. The inputs used in developing the forecast as well as the results of the analyses are thoroughly vetted with stakeholders through the Load Analysis Subcommittee ("LAS") and the

[4] Generally, a Monte Carlo simulation is a computational algorithm that relies on repeated random sampling to derive numerical results.

Planning Committee. The forecast is then produced by PJM staff and released prior to the start of each planning period.

Q. **In addition to supporting the development of the Regional Transmission Expansion Plan, does PJM use the load forecast for other purposes?**

A. Yes. The PJM load forecast is also used to set the peak loads for capacity obligations in the PJM Region and for reliability assessment relied upon by the North American Electric Reliability Corporation and regional reliability organizations.

Q. **Has PJM reviewed and evaluated the procedures and methodology used to develop the load forecast?**

A. Yes. PJM routinely reviews and evaluates the procedures and methodology used to develop the load forecast. As indicated above, by participating in the LAS, PJM Members have input into the development process, and the load forecasting methodology was evaluated and endorsed by the PJM Planning Committee. Moreover, subsequent to the adoption of the methodology, Itron, an independent consulting firm that provides state of the art load forecasting analyses and tools to other Regional Transmission Organizations and electric utilities across North America, substantially endorsed PJM's load forecasting methodology based upon its independent evaluation in 2011. Notably Itron did not suggest making any changes to the methodology to address the "industry trends" that Dr. Tabors suggests are not considered.

Q. **Has PJM made any adjustments or improvements to its methodology over the years?**

A. Yes. PJM has refined its load forecast methodology in a variety of ways by, for example, developing seasonal models which increase the seasonality of the independent variables in the model, adopting weather normalization to enhance consistency between historical and forecasted loads, by adopting forecasts for Load Management and Energy Efficiency to incorporate resources that have cleared in PJM's RPM auctions, and expanding the number of economic measures used to evaluate the economic activity in the PJM Region.

Q. **Does PJM perform any analysis to validate the results of its load forecasting methodology?**

A. As a validation of the procedures and methodology used to develop the load forecast, PJM performs benchmarking analysis to assess the accuracy of the forecast after the fact. Following each summer period, PJM produces a "weather-normalized" peak for the previous summer that represents what the peak would have been under typical peak weather conditions. The weather-normalized peak is then compared to the forecasted peak. This practice of comparing a weather-normalized peak to the forecasted peak is commonly used in the industry to assess forecasting accuracy.

Q. **You mentioned above that PJM stakeholders are invited to assist with the development of the PJM Load Forecast model. Has URMC, or specifically, Dr. Tabors, participated in any of the stakeholder discussions regarding the development of the PJM Load Forecast model?**

A. No. All PJM stakeholders are eligible to participate in the development, and refinement of the Load Forecast model, but URMC and Dr. Tabors have not participated in any such stakeholder meetings.[5]

Q. **Dr. Tabors suggests that load growth in the ComEd load zone is decreasing. Do you agree?**

A. No. Dr. Tabors points to the net metered peak load for the ComEd load zone as taken from the PJM Load Forecast Report that he shows in Figure 1 of his testimony. He then compares net metered peak load for 2013 with the net metered peak load for 2012 and 2011. Using these figures, Dr. Tabors incorrectly concludes that load growth in the ComEd load zone has decreased over that period, as I further explain below.

Q. **Do you agree that it is appropriate to evaluate the trend of load growth in the ComEd load zone in this manner?**

A. No. It is inappropriate to just look at a series of net metered loads and make a broad determination about load growth without giving consideration to the other factors that impact peak load – specifically weather and the implementation of load management. By normalizing the unrestricted load (i.e., the net metered load plus estimated load reductions) data to account for the specific weather conditions on the day of the metered peak, the peak load in the ComEd zone has actually increased year after year since 2009.

Q. **Does PJM expect that trend to continue?**

[5] *See* URMC Responses to ComEd Data Request 1.21 and 1.28, included in ComEd Group Exs. 3 and 4, respectively.

A. Yes. As I have noted above, economic growth is a strong indicator of future load growth. PJM uses projections of economic growth projections from numerous areas around the PJM Region to forecast future load growth. Based on the latest projections of economic growth from Moody's Analytics, Chicago, is one of the metropolitan areas expected to see greater economic growth than the PJM Region as a whole, given productivity gains and its highly educated work force.

Q. **In his testimony, Dr. Tabors criticizes PJM's load forecast methodology for failing to take into account what he believes are future trends in the industry, including increased proliferation of renewable technologies, such as distributed solar power systems, and the evolution in information technology and intelligent demand response. Are his assertions correct?**

A. No. As I have noted above, PJM's load forecasting methodology is predicated upon an analysis of empirical weather and economic statistics, coupled with proven and reliable analytical forecasting tools, to produce time-tested proven results. Injecting hypothetical industry trends into this methodology would only inject uncertainty into the model and cannot be a sound basis upon which to forecast future load growth. Unfortunately, as Dr. Tabors is certainly aware, industry trends can, and often are, just that – trends. While there is no denying that the electric industry is changing, no one can say with any certainty whether Dr. Tabors' projections are plausible or feasible. Until such trends manifest themselves into reality, PJM must adhere to proven methods, relied upon by the industry and its regulators, to develop projections of future load growth.

Q. **In leveling his criticism of PJM's forecasting methodology, Dr. Tabors particularly suggests that PJM did not adequately consider the major changes taking place in the cost effectiveness of distributed solar systems. Just how does the installed cost of distributed solar systems compare to other resources?**

A. According to the United States Energy Information Administration (EIA) the installed cost of small utility scale solar PV installations is more than 4.5 times the installed cost of a conventional gas fired combined cycle generating facility.[6] The installed cost of small residential and commercial rooftop solar is even higher than small utility scale solar PV.

Q. **Given Dr. Tabors criticism, do you believe that it would be appropriate to re-evaluate the studies related to the need for the GPG project based on the speculative industry trends suggested by Dr. Tabors?**

A. Absolutely not. Dr. Tabors suggests PJM should undertake an analysis of the industry trends towards distributed generation, intelligent communications and controls in the distribution system. In particular, he concludes that the increased penetration of rooftop solar and intelligent demand response will eliminate the need for the Project. Yet, PJM's RTEP already considers the effect of demand response and solar and other distributed resources. Based on the PJM-EIS[7] Generation Attributes Tracking System (GATS), there are over 1700 MW of installed nameplate solar installations within PJM. Of these 1700 MWs, roughly 16% are participating in PJM's wholesale electric markets. These resources are modeled in the RTEP either explicitly if they are of sufficient size, or

[6] http://www.eia.gov/forecasts/capitalcost/xls/table1.xls

[7] PJM-EIS, a subsidiary of PJM Interconnection, provides, among other things, the reporting and tracking of emission data and Renewable Energy Credits for various jurisdictions throughout the PJM Region.

as is the case for behind the meter distributed resources, as an offset to load. It should be noted that the peak capacity factor of solar resources is only 38% of their nameplate based on historic output of these devices at peak load periods. These solar resources currently account for only a fraction of a percent of the installed capacity of all resources within PJM.

Q. **Are there any other indicators of the projected proliferation of solar resources in the PJM Region?**

A. The PJM interconnection queue provides an indication of the type of resources that are likely to interconnect to the system in the future. Based on the 2013 RTEP report, solar resources account for only approximately 3% of all of the resources that have entered the interconnection queue. Another factor that may impact Dr. Tabors' assertions about the penetration of solar resources is that a significant federal subsidy is set to expire. The federal Investment Tax Credit (ITC) for solar resources is a 30 percent tax credit on residential and commercial solar installations. It will exist in its current form through December 31, 2016. After that date, the residential incentive ends, and the commercial component will be reduced to 10%.

Q. **Should the Commission consider Dr. Tabors' predictions related to industry trends in evaluating the need for the proposed Project?**

A. No. Regardless of the speculative industry trends that Dr. Tabors cites and his assertion that PJM load may not grow at the same rate as PJM has forecast, we know that the constraints that are driving the ARR insufficiencies exist today and that any load growth in the future will continue to make the situation worse. Considering all of these factors it

would be inappropriate to stop the planning process, redo the studies associated with the Project and continue to subject the customers to the inefficiencies that exist today without the Project on the hope that these speculative industry trends may materialize in sufficient quantities to obviate the need for the Project.

III. CONCLUSION

Q. **Does this conclude your surrebuttal testimony?**

A. Yes.